



CS402- Theory of Automata
Solved MCQS
From Midterm Papers

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PSMD01

FINALTERM EXAMINATION
Spring 2010
CS402- Theory of Automata (Session - 1)

Question No: 1 (Marks: 1) - Please choose one

If $r1 = (aa + bb)$ and $r2 = (a + b)$ then the language $(aa + bb)(a + b)$ will be generated by

- ▶ **(r1)(r2) (Page 10)**
- ▶ $(r1 + r2)$
- ▶ $(r2)(r1)$
- ▶ $(r1)^*$

Question No: 2 (Marks: 1) - Please choose one

“One language can be expressed by more than one FA”. This statement is _____

- ▶ **True (Page 14)**
- ▶ False
- ▶ Some times true & sometimes false
- ▶ None of these

Question No: 3 (Marks: 1) - Please choose one

Who did not invent the Turing machine?

- ▶ Alan Turing
- ▶ **A. M. Turing (Page 140)**
- ▶ Turing
- ▶ None of these

Question No: 4 (Marks: 1) - Please choose one

Which statement is true?

- ▶ **The tape of turing machine is infinite. (Page 140)**
- ▶ The tape of turing machine is finite.
- ▶ The tape of turing machine is infinite when the language is regular
- ▶ The tape of turing machine is finite when the language is nonregular.

دنیا میں سب سے مشکل کام اپنی اصلاح اور سب سے آسان کام دوسروں پر نکتہ چینی کرنا ہے

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Question No: 5 (Marks: 1) - Please choose one

A regular language:

- ▶ **Must be finite (Page 11)**
- ▶ Must be infinite
- ▶ Can be finite or infinite
- ▶ Must be finite and cannot be infinite

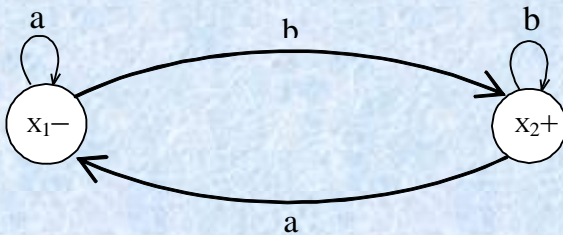
Question No: 6 (Marks: 1) - Please choose one

Every regular expression can be expressed as CFG but every CFG cannot be expressed as a regular expression.

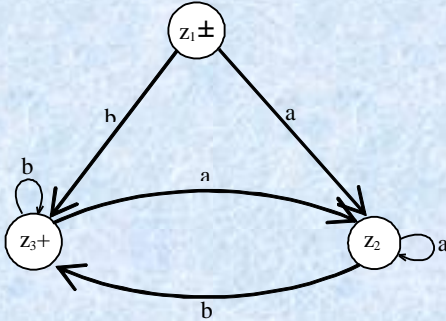
This statement is:

- ▶ Depends on the language
- ▶ None of the given options
- ▶ **True (Page 97)**
- ▶ False

Question No: 7 (Marks: 1) - Please choose one



Above given FA corresponds RE r . then FA corresponding to r^* will be



This statement is

- ▶ **True (Page 38)**
- ▶ False
- ▶ Depends on language
- ▶ None of these

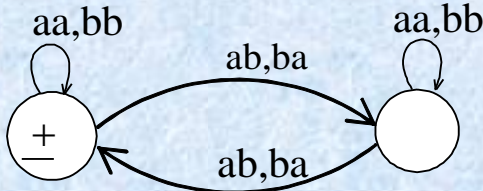
بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No: 8 (Marks: 1) - Please choose one

Consider the language L of strings, defined over $\Sigma = \{a,b\}$, ending in a

- ▶ **There are finite many classes generated by L, so L is regular (Page 76)**
- ▶ There are infinite many classes generated by L, so L is regular
- ▶ There are finite many classes generated by L, so L is non-regular
- ▶ There are infinite many classes generated by L, so L is non-regular

Question No: 9 (Marks: 1) - Please choose one



Above given TG has _____ RE.

- ▶ $(aa+aa+(ab+ab)(aa+ab)^*(ab+ba))^*$
- ▶ **$(aa+bb+(ab+ba)(aa+bb)^*(ab+ba))^*$ (Page 22)**
- ▶ $(aa+bb+(ab+ba)(aa+bb)(ab+ba))^*$
- ▶ None of these

Question No: 10 (Marks: 1) - Please choose one

The word 'formal' in formal languages means

- ▶ The symbols used have well defined meaning
- ▶ They are unnecessary, in reality
- ▶ **Only the form of the string of symbols is significant** [Click here for detail](#)
- ▶ None of these

Question No: 11 (Marks: 1) - Please choose one

Let $A = \{0, 1\}$. The number of possible strings of length 'n' that can be formed by the elements of the set A is

- ▶ $n!$
- ▶ n^2
- ▶ n^m
- ▶ **2^n**

Question No: 12 (Marks: 1) - Please choose one

Choose the correct statement.

- ▶ A Mealy machine generates no language as such
- ▶ A Moore machine generates no language as such
- ▶ A Mealy machine has no terminal state
- ▶ **All of these** [click here for detail](#)

اللہ کا خوف سب سے بڑی دانائی ہے

Question No: 13 (Marks: 1) - Please choose one

TM is more powerful than FSM because

- ▶ The tape movement is confined to one direction
- ▶ It has no finite state control
- ▶ **It has the capability to remember arbitrary long sequences of input symbols** [Click here for detail](#)
- ▶ None of these

Question No: 14 (Marks: 1) - Please choose one

If L1 and L2 are expressed by regular expressions r1 and r2, respectively then the language expressed by r1 + r2 will be _____

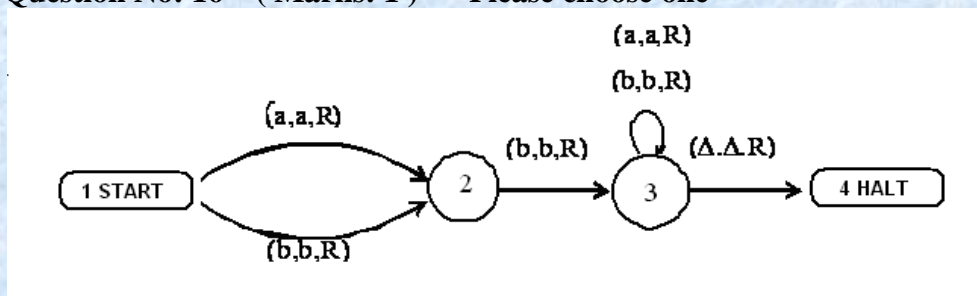
- ▶ **Regular (Page 10)**
- ▶ Ir-regular
- ▶ Can't be decided
- ▶ Another Language which is not listed here

Question No: 15 (Marks: 1) - Please choose one

Like TG, a PDA can also be non-deterministic

- ▶ **True (Page 111)**
- ▶ False

Question No: 16 (Marks: 1) - Please choose one



The above machine is a/anTG _____

- ▶ Finite Automata
- ▶ **Turing machine (Page 141)**
- ▶ FA
- ▶ TG

Question No: 17 (Marks: 1) - Please choose one

The language of all words (made up of a's and b's) with at least two a's can not be described by the regular expression.

- ▶ $a(a+b)^*a(a+b)^*(a+b)^*ab^*$
- ▶ $(a+b)^*ab^*a(a+b)^*$
- ▶ $b^*ab^*a(a+b)^*$
- ▶ **none of these**

$a^n b^n$ { where $n > 0$ } is the language will at least one a and b and cannot be described by RE.

Question No: 18 (Marks: 1) - Please choose one

In FA, if one enters in a specific state but there is no way to leave it, then that specific state is called

- ▶ Dead State
- ▶ Waste Basket
- ▶ Davey John Locker
- ▶ **All of these (Page 17)**

Question No: 19 (Marks: 1) - Please choose one

If L is a regular language then, L^c is also a _____ language.

- ▶ **Regular (Page 66)**
- ▶ Non-regular
- ▶ Regular but finite
- ▶ None of the given

Question No: 20 (Marks: 1) - Please choose one

In CFG, the symbols that can't be replaced by anything are called _____

- ▶ **Terminal (Page 87)**
- ▶ Non-Terminal
- ▶ Production
- ▶ All of given

Question No: 21 (Marks: 1) - Please choose one

Which of the following is NOT a regular language?

- ▶ String of 0's whose length is a perfect square
- ▶ Set of all palindromes made up of 0's and 1's
- ▶ String of 0's whose length is a prime number
- ▶ **All of the given options** [Click here for detail](#)

Question No: 22 (Marks: 1) - Please choose one

Choose the incorrect (FALSE) statement.

- ▶ A Mealy machine generates no language as such
- ▶ A Mealy machine has no terminal state
- ▶ **For a given input string, length of the output string generated by a Moore machine is not more than the length of the output string generated by that of a Mealy machine** [click here for detail](#)
- ▶ All of these

Question No: 23 (Marks: 1) - Please choose one

Pumping lemma is generally used to prove that:

- ▶ A given language is infinite
- ▶ **A given language is not regular** [Click here for detail](#)
- ▶ Whether two given regular expressions of a regular language are equivalent or not
- ▶ None of these

دنیا کی سب سے بڑی فتح نفس پر قابو رکھنا ہے

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Question No: 24 (Marks: 1) - Please choose one

Which of the following is a regular language?

- ▶ String of odd number of zeroes [Click here for detail](#)
- ▶ Set of all palindromes made up of 0's and 1's
- ▶ String of 0's whose length is a prime number
- ▶ All of these

Question No: 25 (Marks: 1) - Please choose one

Choose the incorrect statement:

- ▶ $(a+b)^*aa(a+b)^*$ generates Regular language.
- ▶ A language consisting of all strings over $\Sigma=\{a,b\}$ having equal number of a's and b's is a regular language
- ▶ Every language that can be expressed by FA can also be expressed by RE
- ▶ None of these

Question No: 26 (Marks: 1) - Please choose one

Left hand side of a production in CFG consists of:

- ▶ One terminal
- ▶ More than one terminal
- ▶ One non-terminal (Page 87)
- ▶ Terminals and non-terminals

FINAL TERM EXAMINATION SPRING 2007

Question No: 1 (Marks: 1) - Please choose one

PDA is only used to represent a regular language.

- ▶ True
- ▶ False [Click here for detail](#)

Question No: 2 (Marks: 1) - Please choose one

If L is a regular language then LC is also a regular language.

- ▶ True (Page 66)
- ▶ False

ایماندار کو غصہ دیر سے آتا ہے اور جلدی دور ہو جاتا ہے

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Question No: 3 (Marks: 1) - Please choose one

A production of the form non-terminal \Rightarrow string of two non-terminal is called a live Production.

▶ **True** (Page 127)

▶ False

Question No: 4 (Marks: 1) - Please choose one

We can find a CFG corresponding to a DFA.

▶ **True** (Page 97)

▶ False

Question No: 5 (Marks: 1) - Please choose one

START, READ, HERE and ACCEPTS are conversions of the machine

▶ **True** (Page 122)

▶ False

Question No: 6 (Marks: 1) - Please choose one

A CFG is said to be ambiguous if there exists at least one word of its language that can be generated by different production trees

▶ **True** (Page 95)

▶ False

Question No: 7 (Marks: 1) - Please choose one

Syntax tree or Generation tree or Derivation tree are same tree

▶ **True** (Page 92)

▶ False

Question No: 8 (Marks: 1) - Please choose one

The symbols that cannot be replaced by anything are called terminals

▶ **True** (Page 87)

▶ False

Question No: 9 (Marks: 1) - Please choose one

The production of the form non-terminal \Rightarrow one non-terminal is called unit production

▶ **True** (Page 100)

▶ False

Question No: 10 (Marks: 1) - Please choose one

DFA and PDA are equal in power.

▶ True

▶ **False** (Page 105)

زندگی میں کامیابی کا یہی راز ہے کہ پریشانیوں سے پریشان مت بنو

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FINAL TERM EXAMINATION
Spring 2006
CS402- Theory of Automata

Question No. 1

A production of the form non-terminal \rightarrow non-terminal is called a dead Production.

True

False (Page 127)

Question No. 2

Semi-word is a string having some terminals and one non-terminal at the right of string.

True (Page 97)

False

Question No. 3

Two FAs are equivalent if they have same no. of states.

True (Page 15)

False

Question No. 4

There exist exactly two different derivations in an ambiguous CFG for a word.

True (Page 93)

False

Question No. 6

Regular languages are closed under Union, Concatenation and Kleene star.

True (Page 10)

False

Question No. 7

CFG may also represent a regular language.

True (Page 97)

False

Question No. 9 Marks : 1

PDA is stronger than FA.

True (Page 105)

False

جھوٹ انسان اور ایمان دونوں کا دشمن ہے

FINAL TERM EXAMINATION
Spring 2005
CS402- Theory of Automata

Question No. 1

A Total Language Tree has

All languages over Σ

All strings over Σ (Page 96)

All words of all languages over Σ

All words of one language over Σ

Question No. 2

What Turing Machine does not have?

Stack

Tape

Head

Word

Turing machine has stack but insertion and deletion can be done from both sides. Tape and head to.

Question No. 3

CFG given $S \Rightarrow bS|Sb|aa$ represents language

b^*aa

aab^*

b^*aab^*

$b^*(aa)^*b^*$

Question No. 4

A Language that is finite but not regular

Λ

$(a+b)^*$

Φ (not sure)

All strings of a's in $\Sigma = \{a, b\}$

عقل مند کہتا ہے میں کچھ نہیں جانتا جبکہ بے وقوف کہتا ہے کہ میں سب کچھ جانتا ہوں

CS402 – Quiz No.3

Question # 1 of 10 (Total Marks: 1)

Select correct option:

The values of input (say a & b) does not remain same in one cycle due to

NAND gate

Click plus

OR gate

NOT gate

Question # 2 of 10 (Total Marks: 1)

Select correct option:

Set of all palindromes over {a,b} is regular

True

False (Page 74)

Question # 3 of 10 (Total Marks: 1)

Select correct option:

In CFG, the symbols that cannot be replaced by anything are called

Terminals (Page 87)

Non terminals

Productions

None of the given options

Question # 4 of 10 (Total Marks: 1)

Select correct option:

$a^n b^n$ generates the language

regular

non regular

EQUAL and non regular (Page 71)

EQUAL and regular

Question # 5 of 10 (Total Marks: 1)

Select correct option:

The grammatical rules which involves meaning of words are called:

Semantic (Page 87)

Syntactics

Alphabets

None of the given options

خود کو تمہیں سے بڑھ کر کوئی اچھا مشورہ نہیں دے سکتا

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Question # 6 of 10 (Total Marks: 1) Select correct option:

The reverse of the string sbfsbb over { sb, f, b }

bbsfbs

bsbfsb

sbbfsb

bsfbsb

Question # 7 of 10 (Total Marks: 1) Select correct option:

If an FA has N state then it must accept the word of length

N-1

N+1

N+2N

Question # 8 of 10 (Total Marks: 1) Select correct option:

Two languages are said to belong to same class if they end in the same state when they run over an FA, that state

Must be final state

May be final state or not (Page 75)

May be start or not

None of the given options

Question # 9 of 10 (Total Marks: 1) Select correct option:

In $\text{pref}(Q \text{ in } R)$ Q is to (than) R

Equal

Not Equal (Page 79)

Greater

Smaller

Question # 10 of 10 (Total Marks: 1) Select correct option:

According to Myhill Nerode theorem, if L generates finite no. of classes then L is.....

Finite

Infinite

Regular (Page 76)

Non Regular

جو شخص ناکامیوں سے ڈر کر بھاگتا ہے کامیابی اس سے ڈر کر بھاگتی ہے

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Question # 1 of 10 (Total Marks: 1)

Select correct option:

If the intersection of two regular languages is regular then the complement of the intersection of these two languages is also regular

True (Page 68)

False

Question # 2 of 10 (Total Marks: 1)

Select correct option:

In pumping lemma theorem ($x y^n z$) the range of n is

$n=1,2,3,4,\dots$ (Page 74)

$n=0,1,2,3,4,\dots$

$n=-3,-2,-1,0,1,2,3,4,\dots$

$n=-3,-2,-1,1,2,3,4,\dots$

Question # 3 of 10 (Total Marks: 1)

Select correct option:

The complement of a regular language is also a regular

True rep

False

CS402 – Quiz No.3

Question # 1 of 10 (Total Marks: 1)

Select correct option:

For a non regular language there exist FA

One

At least one

At most one

No (Page 71)

Question # 2 of 10 (Total Marks: 1)

Select correct option:

The strings or words which do not belong to a language is called..... of that language

Intersection

Union

Complement (Page 66)

Quotient

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Question # 3 of 10 (Total Marks: 1) Select correct option:

A non regular language can be represented by

RE

FA

TG

None of the given options (Page 71)

Question # 4 of 10 (Total Marks: 1) Select correct option:

For language L defined over {a, b}, then L partitions {a, b}* into classes

Infinite

Finite

Distinct (Page 75)

Non distinct

Question # 5 of 10 (Total Marks: 1) Select correct option:

If an FA accept a word then there must exist a path from

Initial to final state (Page 81)

Initial to each state

Initial to each state but not to final state

Initial to final state by traversing each state

Question # 6 of 10 (Total Marks: 1) Select correct option:

Does the empty string match the regular expression $|y+a|$?

Yes

No (Page 3)

Question # 7 of 10 (Total Marks: 1) Select correct option:

If an FA already accepts the language expressed by the closure of certain RE, then the given FA is the required FA.

True (Page 37)

False

Question # 8 of 10 (Total Marks: 1) Select correct option:

Which of the following statement is true about NFA with Null String?

Infinite states

Infinite set of letters

Infinite set of transitions

Transition of null string is allowed at any stage (Page 71)

Question # 9 of 10 (Total Marks: 1)**Select correct option:**

If R is a regular language and L is some language, and $L \cup R$ is a regular language, then L must be a regular language.

True (page 10)

False

Question # 10 of 10 (Total Marks: 1)**Select correct option:**

FA corresponding to an NFA can be built by introducing an empty state for a letter having

no transition at certain state (Page 43)

one transition at certain state

two transition at certain state

more than two transitions at certain state

Question # 1 of 10 (Total Marks: 1)**Select correct option:**

Let FA3 be an FA corresponding to FA1FA2, then the initial state of FA3 must correspond to the initial state of

FA1 only (Page 35)

FA2 only

FA1 or FA2

FA1 and FA2

Question # 2 of 10 (Total Marks: 1)**Select correct option:**

$(a^* + b^*)^* = (a + b)^*$ this expression is _____

True

False**Question # 3 of 10 (Total Marks: 1)****Select correct option:**

If $S = \{ x \}$, then S^* will be

 $\{x, xx, xxx, xxxx, \dots\}$ **$\{^x, xx, xxx, xxxx, \dots\}$ (Page 10)****Question # 4 of 10 (Total Marks: 1)****Select correct option:**

The states in which there is no way to leave after entry are called

Davey John Lockers

Dead States

Waste Baskets

All of the given options (Page 17)

جو لوگوں کے سامنے فخر کرتا ہے وہ لوگوں کی نظروں سے گر جاتا ہے

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Question # 5 of 10 (Total Marks: 1)

Select correct option:

If $S = \{ab, bb\}$, then S^* will not contain

Abbbab

Bbba

ababbb

bbbbab

Question # 6 of 10 (Total Marks: 1)

Select correct option:

According to theory of automata there are _____ types of languages

1

2 (Page 3)

3

4

Question # 7 of 10 (Total Marks: 1)

Select correct option:

What do automata mean?

Something done manually

Something done automatically (Page 3)

Question # 8 of 10 (Total Marks: 1)

Select correct option:

What is false about the term alphabet?

It is a finite set of symbols.

It is usually denoted by Greek letter sigma

It can be an empty set. (Page 3)

Strings are made up of its elements

Question # 9 of 10 (Total Marks: 1)

Select correct option:

Formal is also known as _____

Syntactic language (page 3)

Semantic language

Informal language

None of these

Question # 10 of 10 (Total Marks: 1)

Select correct option:

Following are types of languages

Formal Languages (Syntactic languages)

Informal Languages (Semantic languages)

Both (Page 3)

None of above

عقل مند اپنے عیب خود دیکھتا ہے اور بڑے قوفوں کے عیب دنیا دیکھتی ہے

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CS402 – Quiz No.4

Question # 1 of 10 (Total Marks: 1)

Select correct option:

Consider the following production (of a CFG): $S \rightarrow XYZ$ Here _____ is left most nonterminal in working string. Note: S, X, Y and Z are all nonterminals

- S
- X**
- Y
- Z

Question # 2 of 10 (Total Marks: 1)

Select correct option:

A PDA is called nondeterministic PDA if _____

There are more than one outgoing edges at READ or POP states with one label (Page 111)

- There are more than one PUSH states
- There are more than one POP states
- All of the given options

Question # 3 of 10 (Total Marks: 1)

Select correct option:

A PDA consists of the following:

- An alphabet (Sigma) of input letters.
- An input TAPE with infinite many locations in one direction
- One START state with only one out-edge and no in-edge

All of the given options (Page 105)

Question # 4 of 10 (Total Marks: 1)

Select correct option:

The CFG $S \rightarrow aSa \mid bSb \mid a \mid b \mid \epsilon$ represents the language

EVEN-EVEN

PALINDROM (Page 91)

EQUAL

ODD-ODD

Question # 5 of 10 (Total Marks: 1)

Select correct option:

Halt states are

Start and Accept

Accept and Reject (Page 105)

Start and Reject

Read and Reject

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Question # 6 of 10 (Total Marks: 1)**Select correct option:**

Choice of path can be determined by left most derivation of the string belonging to CFL at..... state

Accept (Page 104)

Reject

Push

POP

Question # 7 of 10 (Total Marks: 1)**Select correct option:**

The unit and null productions can be deleted from a CFG

True (Page 99-100)

False

Question # 8 of 10 (Total Marks: 1)**Select correct option:**

Identify the TRUE statement about following CFG:

 $S \rightarrow SB|AB$ $A \rightarrow CC$ $B \rightarrow b$ $C \rightarrow a$

The given CFG has 8 Nonterminals

The given CFG has 8 Terminals

The given CFG is in CNF (Page 101)

The given CFG is not in CNF

Question # 9 of 10 (Total Marks: 1)**Select correct option:**

The structure given below is called _____ $S \rightarrow aA|bB$ $A \rightarrow aS|a$ $B \rightarrow bS|b$

RE

TG

CFG (Page 87)

PDA

Question # 10 of 10 (Total Marks: 1)**Select correct option:**

Which of the following states is not part of PDA

START

ACCEPT

WRITE (Page 107)

REJECT

بد صورت چہرہ بد صورت دماغ سے بہتر ہے

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CS402 – Quiz No.4

Question # 1 of 10 (Total Marks: 1)

Select correct option:

The production of the form: nonterminal \rightarrow one nonterminal is called the _____

Unit production (Page 100)

NULL production

Terminal production

Non Terminal production

Question # 2 of 10 (Total Marks: 1)

Select correct option:

A _____ is the one for which every input string has a unique path through the machine.

Deterministic PDA (Page 111)

nondeterministic PDA

PUSHDOWN store

Input Tape

Question # 3 of 10 (Total Marks: 1)

Select correct option:

In the null production $N \rightarrow \epsilon$, N is a

Terminal

Non terminal (Page 99)

Word

None of the given options

Question # 4 of 10 (Total Marks: 1)

Select correct option:

The major problem in the earliest computers was

To store the contents in the registers

To display mathematical formulae (Page 87)

To load the contents from the registers

To calculate the mathematical formula

Question # 5 of 10 (Total Marks: 1)

Select correct option:

In polish notation, (o-o-o) is the abbreviation of.....?

Operand - Operator – Operand

Operand - Operand- Operator

Operator -Operand – Operand (Page 94)

Operand -Operand – Operand

Question # 6 of 10 (Total Marks: 1)

Select correct option:

The CFG is said to be ambiguous if there exist at least one word of its language that can be generated by the production trees

One

Two

More than one (Page 95)

At most one

Question # 7 of 10 (Total Marks: 1)

Select correct option:

The input string is placed, before it runs, in

Stack

Memory

Tape (Page 105)

Ram

Question # 8 of 10 (Total Marks: 1)

Select correct option:

The production $S \rightarrow SS \mid a \mid b \mid \epsilon$ can be expressed by RE

$(a+b)^+$

$(a+b)$

$(a+b)^*$ (Page 88)

$(ab)^*$

Question # 9 of 10 (Total Marks: 1)

Select correct option:

The locations into which we put the input letters on "Input Tap" are called _____

words

alphabets

cells (Page 105)

elements

Question # 10 of 10 (Total Marks: 1)

Select correct option:

"CFG" stands for _____

Context Free Graph

Context Free Grammar (Page 87)

Context Finite Graph

Context Finite Grammar

عقل مند آدمی اس وقت تک نہیں بولتا جب تک خاموشی نہیں ہو جاتی

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Question # 1 of 10 (Total Marks: 1)

Select correct option:

In a CFG the nonterminal that occurs first from the left in the working string, is said to be _____

Least Significant nonterminal

Most Significant nonterminal

Left most nonterminal (Page 103)

Left most derivate

Question # 2 of 10 (Total Marks: 1)

Select correct option:

The unit production is

Terminal --> Terminal

Terminal --> Non Terminal

Non terminal --> Terminal

Non terminal --> Non Terminal (Page 100)

Question # 3 of 10 (Total Marks: 1)

Select correct option:

A _____ operator adds a new letter at the top of STACK

PUSH (Page 107)

POP

READ

APPEND

Question # 4 of 10 (Total Marks: 1)

Select correct option:

PDA stands for _____

Push and Drop Automaton

Pop and Drop Automaton

Push Down Automaton (Page 112)

None of given options

Question # 5 of 10 (Total Marks: 1)

Select correct option:

The production of the form: Nonterminal-> ^ is said to be _____ production

NULL (Page 99)

UNIT

Chomsky form production

None of the given options

انسان دکھ نہیں دیتے بلکہ انسانوں سے وابستہ امیدیں دکھ دیتی ہیں

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Question # 6 of 10 (Total Marks: 1)

Select correct option:

If a CFG has a null production, then it is _____

Posiible to construct another CFG without null production accepting the same language with the exception of the word ^ (Page 99)

Not possible to construct another CFG without null production accepting the same language with the exception of the word ^

Called NULL CFG

Called Chmosky Normal Form (CNF)

Question # 7 of 10 (Total Marks: 1)

Select correct option:

In a STACK:

The element PUSHed first is POPed first

The element PUSHed first is POPed in the last (Page 107 concept)

The element PUSHed in last is POPed in last

None of given options

Question # 8 of 10 (Total Marks: 1)

Select correct option:

Kleene star closure can be defined

Over any set of string (Page 7)

Over specific type of string

Question # 9 of 10 (Total Marks: 1)

Select correct option:

While finding RE corresponding to TG, we connect the new start state to the old start state by the transition labeled by

A

B

null string (Page 26)

None of the given options

خوبصورتی علم و ادب سے ہوتی ہے لباس و حسن سے نہیں
بہترین تجربہ وہ ہے جس سے نصیحت حاصل ہو

Some More Quizzes

Question # 1 of 10 (Total Marks: 1) **Select correct option:**
For a given input, it provides the compliment of Boolean AND output.

NAND box (NOT AND) **(Page 63)**

DELAY box

OR box

AND box

Question # 2 of 10 (Total Marks: 1) **Select correct option:**
It delays the transmission of signal along the wire by one step (clock pulse).

NAND box (NOT AND)

DELAY box **(Page 63)**

OR box

AND box

Question # 3 of 10 (Total Marks: 1) **Select correct option:**
For the given input, it provides the Boolean OR output

NAND box (NOT AND)

DELAY box

OR box **(Page 63)**

AND box

Question # 4 of 10 (Total Marks: 1) **Select correct option:**
For the given input, AND box provides the Boolean AND output.

True **(Page 63)**

False

Question # 5 of 10 (Total Marks: 1) **Select correct option:**
The current in the wire is indicated by 1 and 0 indicates the absence of the current.

True **(Page 63)**

False

Question # 6 of 10 (Total Marks: 1) **Select correct option:**
Any language that can not be expressed by a RE is said to be regular language.

True

False **(Page 71)**

Question # 7 of 10 (Total Marks: 1) **Select correct option:**
If L_1 and L_2 are regular languages _____ is/are also regular language(s).

$L_1 + L_2$

L_1L_2

L_1^*

All of above (Page 10)

Question # 8 of 10 (Total Marks: 1) **Select correct option:**
Let L be a language defined over an alphabet Σ , then the language of strings, defined over Σ , not belonging to L , is called Complement of the language L , denoted by L_c or L' .

True (Page 66)

False

Question # 9 of 10 (Total Marks: 1) **Select correct option:**
To describe the complement of a language, it is very important to describe the ----- of that language over which the language is defined.

Alphabet (Page 66)

Regular Expression

String

Word

Question # 10 of 10 (Total Marks: 1) **Select correct option:**
For a certain language L , the complement of L_c is the given language L *i.e.* $(L_c)_c = L$

True

False (Page 66)

Question # 1 of 10 (Total Marks: 1) **Select correct option:**
If L is a regular language then, ----- is also a regular language.

L_m

L_s

L_x

L_c (Page 66)

Question # 2 of 10 (Total Marks: 1) **Select correct option:**
Converting each of the final states of F to non-final states and old non-final states of F to final states, FA thus obtained will reject every string belonging to L and will accept every string, defined over Σ , not belonging to L . is called

Transition Graph of L

Regular expression of L

Complement of L (Page 66)

Finite Automata of L

Question # 3 of 10 (Total Marks: 1)**Select correct option:**

If L1 and L2 are two regular languages, then $L_1 \cup L_2$ is not a regular.

True

False (Page 65)

Question # 4 of 10 (Total Marks: 1)**Select correct option:**

De-Morgan's law for sets is expressed by,

$$(L_1^c \cap L_2^c)^c = L_1^c \cap L_2^c$$

$$(L_1^c \cap L_2^c)^c = L_1^c \cap L_2^c$$

$$(L_1^c \cap L_2^c)^c = L_1 \cap L_2$$

$$(L_1^c \cap L_2^c)^c = L_1 \cup L_2$$
 CORRECT (page 68)

Question # 5 of 10 (Total Marks: 1)**Select correct option:**

If L1 and L2 are regular languages, then these can be expressed by the corresponding FAs.

True (Page 68)

False

Question # 6 of 10 (Total Marks: 1)**Select correct option:**

L= language of words containing even number of a's. Regular Expression is

$$(a+b)^*aa(a+b)^*$$

$$(b+ab^*a)^*$$
 (Page 68)

$$a+bb^*aab^*a$$

$$(a+b)^*ab(a+b)^*$$

Question # 7 of 10 (Total Marks: 1)**Select correct option:**

The regular expression defining the language $L_1 \cap L_2$ can be obtained, converting and reducing the previous --- into a --- as after eliminating states.

GTG, TG

FA, GTG (Page 69)

FA, TG

TG, RE

Question # 8 of 10 (Total Marks: 1)**Select correct option:**

The language that can be expressed by any regular expression is called a Non regular language.

True

False (Page 71)

تم اچھا کرو زمانہ تم کو برا سمجھے یہ اس سے بہتر ہے کہ تم برا کرو اور زمانہ تم کو اچھا سمجھے

Question # 9 of 10 (Total Marks: 1) Select correct option:
The languages ----- are the examples of non regular languages.

PALINDROME and PRIME (Page 71)

PALINDROME and EVEN-EVEN
EVEN-EVEN and PRIME
FACTORIAL and SQUIRE

Question # 10 of 10 (Total Marks: 1) Select correct option:
Let L be any infinite regular language, defined over an alphabet Σ then there exist three strings x, y and z belonging to Σ^* such that all the strings of the form $xy^n z$ for $n=1,2,3, \dots$ are the words in L. called.

Complement of L
Pumping Lemma (Page 72)
Kleene's theorem
None in given

Question # 1 of 10 (Total Marks: 1) Select correct option:
Languages are proved to be regular or non regular using pumping lemma.
True (Page 74)
False

Question # 2 of 10 (Total Marks: 1) Select correct option:
----- is obviously infinite language.
EQUAL-EQUAL
EVEN-EVEN
PALINDROME (Page 75)
FACTORIAL

Question # 3 of 10 (Total Marks: 1) Select correct option:
If, two strings x and y, defined over Σ , are run over an FA accepting the language L, then x and y are said to belong to the same class if they end in the same state, no matter that state is final or not.
True (Page 75)
False

Question # 4 of 10 (Total Marks: 1) Select correct option:
Myhill Nerode theorem is consisting of the followings,

L partitions Σ^* into distinct classes.
If L is regular then, L generates finite number of classes.
If L generates finite number of classes then L is regular.
All of above (Page 75)

Question # 5 of 10 (Total Marks: 1)**Select correct option:**

The language Q is said to be quotient of two regular languages P and R, denoted by--- if $PQ=R$.

$R=Q/P$

Q=R/P (Page 78)

$Q=P/R$

$P=R/Q$

Question # 6 of 10 (Total Marks: 1)**Select correct option:**

If two languages R and Q are given, then the prefixes of Q in R denoted by $\text{Pref}(Q \text{ in } R)$.

True (Page 78)

False

Question # 7 of 10 (Total Marks: 1)**Select correct option:**

Let $Q = \{aa, abaaabb, bbaaaaa, bbbbbb\}$ and $R = \{b, bbbb, bbbaaa, bbbaaaa\}$ Pref (Q in R) is equal to,

{b,bbba,bbbbaa} (Page 78)

{b,bba,bbaaa}

{ab,bba,bbbba}

{b,bba,bbba}

Question # 8 of 10 (Total Marks: 1)**Select correct option:**

If R is regular language and Q is any language (regular/ non regular), then $\text{Pref}(Q \text{ in } R)$ is -----.

Non-regular

Equal

Regular (Page 79)

Infinite

Question # 9 of 10 (Total Marks: 1)**Select correct option:**

_____ states are called the halt states.

ACCEPT and REJECT (Page 105)

ACCEPT and READ

ACCEPT AND START

ACCEPT AND WRITE

Question # 10 of 10 (Total Marks: 1)**Select correct option:**

The part of an FA, where the input string is placed before it is run, is called _____

State

Transition

Input Tape (Page 105)

Output Tape

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Question # 1 of 10 (Total Marks: 1)

Select correct option:

In new format of an FA (discussed in lecture 37), This state is like dead-end non final state

ACCEPT

REJECT (Page 105)

STATR

READ

Question # 2 of 10 (Total Marks: 1)

Select correct option:

Between the two consecutive joints on a path

One character can be pushed and one character can be popped

Any no. of characters can be pushed and one character can be popped (Page 122)

One character can be pushed and any no. of characters can be popped

Any no. of characters can be pushed and any no. of characters can be popped

Question # 3 of 10 (Total Marks: 1)

Select correct option:

The PDA is called non-deterministic PDA when there are more than one out going edges from..... state

START or READ

POP or REJECT

READ or POP (Page 111)

PUSH or POP

Question # 4 of 10 (Total Marks: 1)

Select correct option:

Identify the TRUE statement:

A PDA is non-deterministic, if there are more than one READ states in PDA

A PDA is never non-deterministic

Like TG, A PDA can also be non-deterministic (Page 111)

A PDA is non-deterministic, if there are more than one REJECT states in PDA

Question # 5 of 10 (Total Marks: 1)

Select correct option:

There is a problem in deciding whether a state of FA should be marked or not when the language Q is infinite.

True (Page 79)

False

Question # 6 of 10 (Total Marks: 1)

Select correct option:

If an effectively solvable problem has answered in yes or no, then this solution is called -----

Decision procedure (Page 80)

Decision method

Decision problem

Decision making

Question # 7 of 10 (Total Marks: 1) Select correct option:
The following problem(s) ----- is/are called decidable problem(s).

The two regular expressions define the same language

The two FAs are equivalent

Both a and b (Page 80)

None of given

Question # 8 of 10 (Total Marks: 1) Select correct option:
To examine whether a certain FA accepts any words, it is required to seek the paths from ----- state.

Final to initial

Final to final

Initial to final (Page 81)

Initial to initial

Question # 9 of 10 (Total Marks: 1) Select correct option:
The high level language is converted into assembly language codes by a program called compiler.

TRUE (Page 87)

FALSE

Question # 10 of 10 (Total Marks: 1) Select correct option:
Grammatical rules which involve the meaning of words are called -----

Semantics (Page 87)

Syntactic

Both a and b

None of given

Question # 1 of 10 (Total Marks: 1) Select correct option:
Grammatical rules which do not involve the meaning of words are called -----

Semantics

Syntactic (Page 87)

Both a and b

None of given

Question # 2 of 10 (Total Marks: 1) Select correct option:
The symbols that must be replaced by other things are called _____

Productions

Terminals

Non-terminals (Page 87)

None of given

Question # 3 of 10 (Total Marks: 1)**Select correct option:**

The grammatical rules are often called _____

Productions (Page 87)

Terminals

Non-terminals

None of given

Question # 4 of 10 (Total Marks: 1)**Select correct option:**

The terminals are designated by _____ letters, while the non-terminals are designated by _____ letters.

Capital, bold

Small, capital (Page 87)

Capital, small

Small, bold

Question # 5 of 10 (Total Marks: 1)**Select correct option:**

The language generated by _____ is called Context Free Language (CFL).

FA

TG

CFG (Page 87)

TGT

Question # 6 of 10 (Total Marks: 1)**Select correct option:**

$\Sigma = \{a,b\}$ Productions $S \rightarrow XaaX$

$X \rightarrow aX$

$X \rightarrow bX$

$X \rightarrow \Lambda$

This grammar defines the language expressed by _____

 $(a+b)^*aa(a+b)^*$ (Page 89)

$(a+b)^*a(a+b)^*a$

$(a+b)^*aa(a+b)^*aa$

$(a+b)^*aba+b)^*$

Question # 7 of 10 (Total Marks: 1)**Select correct option:**

$S \rightarrow aXb|b$

$XaX \rightarrow aX|bX|\Lambda$

The given CFG generates the language in English _____

Beginning and ending in different letters (Page 91)

Beginning and ending in same letter

Having even-even language

None of given

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Question # 8 of 10 (Total Marks: 1)**Select correct option:**

The CFG is not said to be ambiguous if there exists atleast one word of its language that can be generated by the different production trees,

TRUE

FALSE (Page 95)**Question # 9 of 10 (Total Marks: 1)****Select correct option:**

The language generated by that CFG is regular if _____

No terminal \rightarrow semi wordNo terminal \rightarrow word**Both a and b (Page 97)**

None of given

Question # 10 of 10 (Total Marks: 1)**Select correct option:**

The production of the form no terminal $\rightarrow \Lambda$ is said to be null production.

TRUE**(Page 99)**

FALSE

Question # 1 of 10 (Total Marks: 1)**Select correct option:**

CNF is stands for

Context Normal Form

Complete Normal Form

Chomsky Normal Form (Page 102)

Compared Null Form

Question # 2 of 10 (Total Marks: 1)**Select correct option:**

Proof(Kleene's Theorem Part II)

If a TG has more than one start states, then

Introduce the new start state (Page 26)

Eliminate the old start state

Replace the old start state with final state

Replace the old final state with new start state

Question # 3 of 10 (Total Marks: 1)**Select correct option:**

Which of the following regular expression represents same language?

a. $(a+ab)^*$ b. $(ba+a)^*$ c. $a^*(aa^*b)^*$ d. $(a^*b^*)^*(a+b)^*a(a+b)^*b(a+b)^*+(a+b)^*b(a+b)^*a(a+b)^*$ **Muhammad Moaaz Siddiq – MCS(4th)****Moaaz.pk@gmail.com****Campus:- Institute of E-Learning & Moderen Studies
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$\{x\}^*$, $\{x\}^+$, $\{a+b\}^*$

Select correct option:

a and b (correct)

a and c

c and d

Question # 4 of 10 (Total Marks: 1)

Select correct option:

Let FA3 be an FA corresponding to FA1+FA2, then the initial state of FA3 must correspond to the initial state of

FA1 only

FA2 only

FA1 or FA2 (Page 32)

FA1 and FA2

Question # 5 of 10 (Total Marks: 1)

Select correct option:

Which of the following statement is NOT true about TG?

There exists exactly one path for certain string (Page 19)

There may exist more than one paths for certain string

There may exist no path for certain string

There may be no final state

Question # 6 of 10 (Total Marks: 1)

Select correct option:

Kleene's theorem states

All representations of a regular language are equivalent.

All representations of a context free language are equivalent.

All representations of a recursive language are equivalent

Finite Automata are less powerful than Pushdown Automata. (Page 105)

Question # 7 of 10 (Total Marks: 1)

Select correct option:

A language accepted by an FA is also accepted by

TG only

GTG only

RE only

All of the given (Page 25)

انسان کے لئے بری صحبت سے بڑھ کر بری کوئی چیز نہیں

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